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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,724

09/09/2005

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710.1016

8900

23280 7590 03/31/2009  
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EXAMINER

KONG, SZE-HON

ART UNIT

PAPER NUMBER

3661

MAIL DATE

DELIVERY MODE

03/31/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/527,724	<b>Applicant(s)</b> BONSE ET AL.	
	<b>Examiner</b> SZE-HON KONG	<b>Art Unit</b> 3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/14/2005, 5/23/2005, 9/9/2005, 12/11/2006,</u>               | 6) <input type="checkbox"/> Other: _____                          |
| <u>11/5/2007, 11/9/2007, 11/21/2007, 9/15/2008, 12/22/2008, 3/16/2009.</u>             |   |



## **DETAILED ACTION**

### ***Response to Amendment***

According to the preliminary amendment filed on 3/14/2005, claims 1 to 12 have been cancelled without prejudice. This Office Action addresses the newly added claims 13 to 24 in the amendment

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 3/14/2005, 5/23/2005, 9/9/2005, 12/11/2006, 11/5/2007, 11/9/2007, 11/21/2007, 9/15/2008, 12/22/2008 and 3/16/2009 was filed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "17" and "17'" have both been used to designate "portions" (Paragraph 0036, line 2) and "surroundings" (Paragraph 0036, line 9 and 11). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted

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after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: The reference number '27' in reference to "the end wall" (Paragraph 0064-0067) is not included in any of the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The

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abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because the reference numbers should be removed from the abstract. Correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informalities:

Paragraph 0010 references claims 1 and 8 that are currently cancelled due to amendment filed and no longer apply to the inventive features in those claims and should be removed.

The reference number (8') (Paragraph 0035, last line; 0036; 0037, line 2; and 0051, line 2) refers to the element "reference area" is not included in the drawings and it should read '8' for consistency.

The term "the initial sensors 14" (Paragraph 0049, line 7) should read "the sensors 14).

Appropriate correction is required.

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Iterative Positioning for Producing a Connecting Area on a Production Part".

***Claim Objections***

9. Claim 13 is objected to because of the following informalities:

The term “during during” (line 6) should read “during”.

The term “the processing path the connection” (line 13) should read “the processing path”.

The term “including” (line 14) should read “includes”.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant claims “The method as recited in claim 13 wherein a TCP/IP interface is used for communicating between an open-loop control system of the robot and an evaluation unit of the sensor system.” This claim is indefinite, because it is unclear how the method step in this claim is related to method claim 13.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 13-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tassakos (DE 19930087).

For claims 13, 14 and 20, Tassakos discloses an industrial robot having a manipulator (processing tool) with sensors affixed to supply measurement data where at least one sensor is a CCD camera used for production in the automotive industry (work on vehicle production) (Paragraph 0002 and 0021). Tassakos discloses moving the manipulator into a defined intermediate position (preliminary position) relative to the object (work piece) (Paragraph 0004-0005). The traverse (processing) path guides the robot relative to the work piece (Paragraph 0014). The differential vector is determined with the difference between the actual measurement vector and the setpoint measurement vector which compute the correction vector and the control of the intermediate position (to the preliminary position) is corrected in the course of the control by a fraction (difference in measurements) of the correction vector and discontinued when the correction vector is smaller (a reduction) than an abort criterion (a predefined threshold), a iterative process (Paragraph 0027, 0031-0032). The value of



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the gradient (Jacobi) matrix are computed and stored during the training phase (setup phase) for the setpoint intermediate position (Paragraph 0026).

Tassakos does not explicitly disclose moving the tool/sensor combination from a proximity position into a preliminary position (intermediate position) and displacing the tool/sensor combination. However, it would have been obvious for one of ordinary skill in the art that the open-loop control program (Paragraph 0056), a well known method to position the robot into a position relative to the work piece with its programming instructions places and displaces the tool/sensor combination into and away the proximity of the work piece.

For claim 15, Tassakos discloses the manipulator control is implemented between the closed-loop (processing phase) and the open-loop (positioning phase) and they can be programmed to invoke the closed-loop control program of the external closed-loop control device from the open-loop control program or to return again from the closed-loop control program to the open-loop control, processing in an overlapping fashion (Paragraph 0056).

For claim 16, Tassakos discloses the internal open-loop control device is in communication with the external closed-loop control device, where the external closed-loop control device is a pc or an industrial personal computer for evaluating the robot processes (Paragraph 0017-0018). Tassakos does not specifically disclose using a TCP/IP interface but such interface is well known and is a standard for high speed data communication and it would have been obvious for one of ordinary skill in the art to utilize this standard.

For claim 17, Tassakos discloses the measurement data are supplied by different sensors include sensors to detect distances from object, forces, moments and photogrammetric data and the manipulator may approach another setpoint intermediate position and run through another training phase, for example, performing tasks on a different work piece (Paragraph 0021). It would have been obvious for one of ordinary skill in the art to program/teach, during the setup phase to process multiple and different type or area of work pieces (vehicle body).

15. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tassakos (DE 19930087) and Pryor (6,317,953).

For claim 18, Tassakos does not specifically disclose the connection area is a tail light area of a vehicle body. It would have been obvious to program the manipulator to perform processing on any area of a vehicle body. Pryor discloses vehicle production robot processing a work piece for a tail light of a vehicle body (Col. 11, lines 36-41).

For claim 19, Tassakos does not specifically disclose the connection area is welds of adjustment elements for orienting a cockpit to a front end wall of a vehicle body. It would have been obvious to program the manipulator to perform processing on any area of a vehicle body. Pryor discloses the connection area is in dashboard of the vehicle (Fig. 4a and col. 5, line 66 – col. 6, line 2).

16. Claims 21, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tassakos (DE 19930087) and Piepmeier et al. (6,278,906).

For claims 21, 25 and 26, Tassakos discloses a multi-jointed industrial robot, having a manipulator designed as a tool for welding and/or processing in an automotive industry (Paragraph 0002-0003). An industrial robot having a manipulator (processing tool) with sensors affixed to supply measurement data where at least one sensor is a CCD camera used for production in the automotive industry (work on vehicle production) (Paragraph 0002 and 0021). A traverse (processing) path guides the robot relative to the work piece (Paragraph 0014). The external closed-loop control device controls the manipulator in response to the measurements is the evaluation unit (Paragraph 0017).

Tassakos discloses a CCD camera and distance measuring sensors (as cited above), but does not specifically disclose a metrically noncalibrated sensor. It would have been obvious for one of ordinary skill in the art that these sensors are/could be noncalibrated. Piepmeier discloses an industrial robot processing a work piece using an uncalibrated sensor system (Abstract).

17. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tassakos (DE 19930087), Piepmeier et al. (6,278,906) and Herzog et al. (5,228,177).

For claim 22, Tassakos does not specifically disclose the processing tool is a stamping or punching tool. Stamping and punching tool are well known in automotive processing industry and it would have been obvious for one of ordinary skill in the art to replace the processing tool on the robot to accomplish required tasks with appropriate

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tools. Herzog discloses a robot having a stamping tool (Abstract).

18. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tassakos (DE 19930087), Piepmeier et al. (6,278,906) and Citrich (US 20030141347).

For claim 23, Tassakos does not specifically disclose the processing tool is a bolt welding device. Bolt welding device is well known in automotive processing industry and it would have been obvious for one of ordinary skill in the art to replace the processing tool on the robot to accomplish required tasks with appropriate tools. Citrich discloses an industrial robot having a bolt welding device (Fig. 1 and abstract).

19. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tassakos (DE 19930087), Piepmeier et al. (6,278,906) and Pryor (6,317,953).

For claim 24, Tassakos does not disclose the at least one sensor is a triangulation sensor measuring points. Pryor discloses the robot uses the camera sensor unit that may be augmented by triangulation sensors using a diode laser or other light source to project the laser spot, provide measurements (Col. 5, lines 36-42). It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the invention of Tassakos to triangulate the measurements on the work piece, taught by Pryor for improving measurement accuracy.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SZE-HON KONG whose telephone number is (571)270-1503. The examiner can normally be reached on 7:30AM-5PM Mon-Fri, Alt. Fri. Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/27/2009

/SZE-HON KONG/  
Examiner, Art Unit 3661

/Thomas G. Black/  
Supervisory Patent Examiner, Art Unit 3661